

SUMMARY OF THE HEMIPTERA OF JAPAN, PRESENTED
TO THE UNITED STATES NATIONAL MUSEUM BY PRO-
FESSOR MITZUKURI.

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THE FOLLOWING list, with the descriptions of species supposed to be new to science, includes the collection of Japanese Hemiptera, which was exhibited at the World's Columbian Exposition in Chicago, and subsequently presented to the United States National Museum by Doctor K. Mitzukuri, Professor at the Imperial University of Tokio, Japan. It embraces the greatest number of species of this order which have thus far been made accessible for scientific study. The museums of Europe are not rich in collections of these insects from Japan, and it is only within the last twenty-five years that much attention has been given to their acquisition. Thunberg was the first to describe any considerable number of the species, and a lapse of thirty-five years took place before Motschulsky next took up the subject and described a few additional species. The later authors who have recently made known the largest proportion of the species are Messrs. Scott, Distant, and Horvath, but they seem to have been unacquainted with a considerable number of the species enumerated in the present paper.

In all, about 137 species are present in this collection, and they appear to have been taken generally in the more southern and warmer parts of the islands. A few more than twenty species described from other localities in the Empire are not among those here recorded, but they are only a small part of the ample fauna yet to be recognized when the various districts of the country shall have been closely examined.

Suborder HETEROPTERA.

Family ARTHROPTERIDÆ.

COPTOSOMA CRIBRARIA, Fabricius.

Coptosoma cribraria, FABRICIUS, Ent. Syst. Supp., p. 551.

Thirteen specimens are in this collection.

COPTOSOMA BIGUTTULA, Motschulsky.

Coptosoma biguttula, MOTSCHULSKY, Bull. Soc. Moscow, 1859, p. 501.

Twenty-seven specimens of this form were taken.

Family SCUTELLERIDÆ.

CHRYSOCORIS GRANDIS, Thunberg.

Chrysocoris grandis, THUNBERG, Nov. Ins. Spec., 1783, p. 31.

Six specimens of two varieties are in the collection.

Subfamily GRAPHOSOMINA.

BOLBOCORIS RETICULATA, Dallas.

Bolbocoris reticulata, DALLAS, Brit. Mus. List, I, p. 45.

Four specimens were secured.

GRAPHOSOMA LINEATA, Linnæus.

Graphosoma lineata, LINNÆUS, Syst. Nat., 10 ed., p. 442.

Nineteen specimens are in the collection. The specimens from Japan vary in the width of the black stripes, and to a small degree in the structure of the genital segments of the male.

Subfamily EURYGASTRINA.

EURYGASTER MAURUS, Linnæus.

Eurygaster maurus, LINNÆUS, Fauna Suec., p. 246.

Eleven specimens variable in size and pattern of marking are at present in this collection.

Family CYDNIDÆ.

MACROSCYTUS JAPONENSIS, Scott.

Macroscytus japonensis, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 294.

Three specimens are included in the collection.

ÆTHUS NIGROPICEUS, Scott.

Æthus nigropiceus, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 294.

Fifteen individuals of this common insect were secured.

Family PENTATOMIDÆ.

Subfamily HALYDINA.

HALYOMORPHA PICUS, Fabricius.

Halyomorpha picus, FABRICIUS, Ent. Syst., IV, p. 115.

Eight specimens are in the collection.

Subfamily ASOPINA.

ZICRONA CŒURULEA, Linnæus.

Zicrona cœrulea, LINNÆUS, Syst. Nat., 10 ed., p. 445.

Only a single specimen is present.

PICROMERUS LEWISI, Scott.

Picromerus lewisi, SCOTT, Ann. Mag. Nat. Hist., XIV, 1874, p. 5.

Two individuals are in the collection.

Subfamily ACANTHOSOMINA.

ACANTHOSOMA DISTINCTUM, Dallas.

Acanthosoma distinctum, DALLAS, Brit. Mus. List, I, p. 304.

Seven specimens were secured.

ACANTHOSOMA SCUTELLATA, Scott.

Acanthosoma scutellata, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 301.

Five specimens are present in the collection.

CLINOCORIS GRAMINEUS, Distant.

Clinocoris gramineus, DISTANT, Trans. Ent. Soc. Lond., 1883, p. 426.

Five specimens of this form were also secured.

CLINOCORIS SIGNORETI, Scott.

Clinocoris signoreti, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 303.

Three specimens only are present.

Subfamily PENTATOMINA.

TROPICORIS JAPONICUS, Distant.

Tropicoris japonicus, DISTANT, Entom. Month. Mag., 1882, p. 76.

Ten specimens are in the collection.

NEZARA VIRIDULA, Linnæus.

Nezara viridula, LINNÆUS, Syst. Nat., 10 ed., 1758, p. 444.

Nine specimens of two varieties were taken for this collection.

NEZARA ANTENNATA, Scott.

Nezara antennata, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 299.

Nine specimens are in the collection.

ÆNARIA ASSIMULANS, Distant.

Ænaria assimulans, DISTANT, Trans. Ent. Soc. Lond., 1883, p. 421.

Eight specimens were secured for this collection.

ÆNARIA LEWISI, Scott.

Ænaria lewisi, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 296.

Eight specimens were placed in the collection.

DOLYCORIS SACCARUM, Linnæus.

Dolycoris saccarum, LINNÆUS, Syst. Nat., 10 ed., p. 721.

This common European species is represented here by three specimens.

EYSARCORIS PARVA, new species.

Grayish ivory-white, polished, short and broad, with the head, callosities, basal margin of scutellum, three short streaks at its apex, areas on the pleura, sides of venter, disk of tergum, punctures of upper surface and produced acute humeral angles, black. Head a little more deflexed at tip and more deeply emarginate than in *E. (Stollia) lewisi*, Distant; the surface closely confluent, at base coarsely, punctate, bronzed, and polished, the lateral margins acutely reflexed, tip of the tylus projecting a little, but hardly as long as the narrowed lateral lobes, at tip a little bristly, vertex with an ivory-white line at base; eyes deep seated; antennæ testaceous, the apical joint and the fourth, excepting its base, blackish, second joint much longer than the third, the fourth about equal to the second; rostrum testaceous, reaching upon the venter; the apical joint and a band across the third piceous. Pronotum punctured with black, in transverse series behind the middle, before the middle very remotely punctate, so as to leave the forward surface transversely pale and almost bare, an irregular black spot next each anterior angle, the lateral angles acuminate, curved, and bounded behind by a sinus in the protracted margin. Scutellum bluntly rounded, irregularly punctate with black, in each anterior angle is an oval ivory-yellow spot which is encircled by black punctures, and a patch of these punctures occupies the inner angle, middle of the outer margin and the tip each with a small black spot, the apical margin pale yellow. Wing-covers remotely punctate with black, yellow and bare on the costal border; membrane faintly dusky. Legs pale yellow, the femora and base of tibiæ minutely flecked with brown, the spines and spurs also brown, apex of tarsi piceous. Venter with a gradually narrowing black patch along the middle, and on each side a ragged obscure stripe which extends forward on the pleura, stigmatal orifices and a row of small spots on the connexivum black.

Length to end of venter, $5\frac{1}{2}$ –6 mm.; width across humeri without the spines, $4\frac{1}{2}$ mm.

Type.—No. 3099, U.S.N.M.

A fine series of both sexes is present in this collection.

EYSARCORIS LEWISI, Distant.

Eysarcoris lewisi, DISTANT, Trans. Ent. Soc. Lond., 1883, p. 423.

Four specimens were placed in the collection.

RUBICONIA INTERMEDIA, Wolff.

Rubiconia intermedia, WOLFF, Icon. Cim., p. 182, pl. XVIII, fig. 181.

Fourteen specimens are present. This species is about as common in Japan as it is in some parts of Germany.

EURYDEMA RUGOSA, Motschulsky.

Eurydema rugosa, MOTSCHULSKY, Etud. Entom., 1861, p. 29.

Twelve specimens, including some varieties, are in the collection.

PLAUTIA FIMBRIATA, Fabricius.

Plantia fimbriata, FABRICIUS, Mant. Ins., II, p. 295.

Six specimens were secured for this collection.

MENIDA VIOLACEA, Motschulsky.

Menida violacea, MOTSCHULSKY, Etud. Entom., 1861, p. 23.

This appears to be an uncommon species. Only two specimens were secured.

ÆLIA FIEBERI, Scott.

Ælia fieberi, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 297.

Only three specimens were secured.

Subfamily PHYLLOCEPHALINA.

GONOPSIS AFFINIS, Uhler.

Gonopsis affinis, UHLER, Proc. Acad. Phila., 1860, p. 224.

Seven specimens are in the collection.

Subfamily UROLABINA.

UROCHELA LUTEOVARIA, Distant.

Urochela luteovaria, DISTANT, Ann. Mag. Nat. Hist., 1881, p. 28.

Only three specimens were found.

UROSTYLIS STRIICORNIS, Scott.

Urostylis striicornis, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 360.

Sixteen specimens were secured. It appears to be a common species in southern Japan.

Family COREIDÆ.

Subfamily MICTINA.

OCHROCHIRA FULIGINOSA, Uhler.

Ochrochira fuliginosa, UHLER, Proc. Acad. Phila., 1860, p. 225.

Four specimens are in the collection.

Subfamily HOMŒOCERINA.

HOMŒOCERUS PUNCTIPENNIS, Uhler.

Homœocerus punctipennis, UHLER, Proc. Acad. Phila., 1860, p. 226.

Eight specimens were secured.

HOMŒOCERUS CONCOLORATUS, Uhler.

Homœocerus concoloratus, UHLER, Proc. Acad. Phila., 1860, p. 225.

Seven specimens are in the collection.

HOMŒOCERUS MARGINATUS, new species.

Pale rufofulvous, long and moderately narrow. Head short, deeply incised behind the base of tylus, the antenniferous lobes with a red band; antennæ rufous, scabrous, as long as the interval from the tip of head to apex of fifth abdominal segment, apex of the second and third joints piceous, the base of the fourth pale yellowish, basal and second joints very long, the second longest, the third a little shorter than the basal one, rostrum yellow, black at tip, reaching to near the middle coxæ. Pronotum steeply sloping forward, paler than the wing-covers, transversely, wavyly rugulose, with confluent coarse punctures between the wrinkles, the lateral margins a little sinuated posteriorly, minutely denticulated along the slender black edge, lateral angles a little curved upward, black, acute, and minutely acuminate, posterior submargin obsoletely carinate. Legs honey yellow, tinged with green, apex of the tarsi piceous. Scutellum greenish yellow, more minutely punctate and rugulose than the pronotum. Hemelytra tinged with rufous, clavus very coarsely punctate, the corium with punctures becoming coarser posteriorly, costal margin a little dusky; membrane pale brownish testaceous, reaching the tip of tergum. Under side pale ochre-yellow, minutely scabrous; connexivum uniformly pale yellow.

Length to tip of abdomen, 20 mm.; width of base of pronotum, 6 mm.

Type.—No. 3103, U.S.N.M.

Only two specimens of this fine insect are present in the collection. The one is redder on the hemelytra than the other. Both are changed by the chemical agent which destroyed their lives, and there is strong evidence of the original color having been green on most of the surface before they had been placed in the collecting bottle.

Subfamily LYBANTINA.

PACHYCEPHALUS OPACUS, Uhler.

Pachycephalus opacus, UHLER, Proc. Acad. Phila., 1860, p. 226.

Only two specimens of this odd-looking insect are in this collection.

Subfamily GONOCERINA.

CLETUS BIPUNCTATUS, Herrich-Schæffer.

Cletus bipunctatus, HERRICH-SCHLEFFER, Wanz. Insekten., V, VII, p. 9, fig. 566.

Eighteen specimens were secured for this collection.

PLINACHTUS SIMILIS, new species.

Rust brown, infuscated above, fulvous beneath. form similar to *Ficana apicalis*, Dallas, but with almost rectangular, acute, slightly recurved humeral angles. Head black and densely granulated above, fulvous on the sides and beneath, coarsely, remotely punctate, middle line obsolete carinate, face a little longer than the vertex behind the eyes, moderately tapering anteriorly, indented each side next the antenniferous lobes, tylus narrow, triangularly widened at base, a little longer than the lateral lobes, and separated from these lobes by a wide deep suture; rostrum stout, infuscated, reaching behind the anterior coxæ; antennæ stout, scabrous, black, as long as the head, pronotum and clavus united, the basal joint long and stouter than the second, the second longer, as long as the pronotum, the third a little shorter than the basal, the fourth thicker, acute at base and tip, a little shorter than the third. Pronotum closely granulate with black in transverse series, the surface steeply sloping toward the head, the lateral margins almost directly diagonal, behind the humeri bluntly diagonal, the posterior margin sinuate and protracted like a flap over the base of the scutellum, and with a transverse faint carina in advance of the basal margin. Scutellum punctate with black in transverse broken lines. Legs granulated and scabrous over most of the surface, black, femora yellow beneath for about two-thirds of the length from base. Hemelytra rust-brown, spread with sunken black punctures, the embolium and most of the costal margin fulvous; membrane dark brown, paler at base. Stigmatal orifices black; connexivum interrupted above with broad black bands.

Length to end of abdomen, $14\frac{1}{2}$ mm.; width between the humeral angles, 6 mm.

Type.—No. 3104, U.S.N.M.

Only one specimen of this insect was secured. It is a male, and bears some resemblance to the common *Anasa tristis*, De Geer, of North America.

Subfamily CORIZINA.

CORIZUS HYALINUS, Fabricius.

Corizus hyalinus, FABRICIUS, Ent. Syst., IV, p. 168.

Thirteen specimens of this genus are in the collection, one form of which appears to be a new species. This is, however, too much altered for satisfactory description.

Family LYGÆIDÆ.

Division NYSINA.

NYSIUS EXPRESSUS, Distant.

Nysius expressus, DISTANT, Trans. Ent. Soc. Lond., 1883, p. 429.

Seventeen specimens, of more than one variety, are present in this collection.

Division BLISSINA.

ISCHNODEMUS OBNUBILUS, Distant.

Ischnodemus obnubilus, DISTANT, Trans. Ent. Soc. Lond., 1883, p. 431.

Two specimens are in the collection.

Division GEOCORINA.

GEOCORIS VARIUS, Uhler.

Geocoris varius, UHLER, Proc. Acad. Phila., 1860, p. 229.

Fifteen specimens were secured.

Division MYODOCHINA.

PAMERA PALLICORNIS, Dallas.

Pamera pallicornis, DALLAS, Brit. Mus. List., II, p. 573.

Six specimens are in the collection.

PAMERA HEMIPTERA, Scott.

Pamera hemiptera, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 27.

This appears to be a common species in southern Japan. Fourteen specimens were secured.

LETHÆUS LEWISI, Distant.

Lethæus lewisi, DISTANT, Trans. Ent. Soc. Lond., 1883, p. 410.

Only four specimens of this form were secured.

LIGYROCORIS TERMINALIS, new species.

Piceo-fulvous, punctate with black, almost spindle-shaped, flatter and more parallel-sided than normal. Head short, fusco-piceous, pubescent, with the occiput a little swollen, and an impressed line each side of middle between the ocelli and divaricating anteriorly; the surface a little rough and uneven, and the sutural lines bounding the tylus deeply defined; antennæ honey yellow, stout, a little shorter than the hemelytra, all but the last joint a little thickened at the tip, basal joint clavate, darker apically, about half as long as the second, the second

longest, piceous at tip, the third about two-thirds the length of the second, dark at tip, fourth dusky, pale at base, a very little shorter than the third; rostrum slender, reaching to the middle coxæ, flavo-testaceous, darker at base, the apical joint piceous. Pronotum subtriangular, the anterior lobe flattened and depressed, infuscated, pubescent, remotely punctate, with the lateral margin reflexed inferiorly, collum reflexed, posterior lobe obscure fulvous, larger than the anterior lobe, moderately convex, sparsely punctate with fuscous, the lateral margins interruptedly reflexed, with the humeral angles knobbed and margined exteriorly by a groove, posthumeral lobes thick, testaceous; pro-pleura piceous in the middle, meso- and meta- dark piceous, feebly punctate. Legs fulvo-testaceous, the coxæ pale at tip, the femora darker apically, punctate, tibiæ paler, tarsi piceous at tip, the anterior femora armed beneath with two long spurs and one short tooth. Scutellum rufocastaneous, depressed and punctate at base, carinate and paler at tip. Clavus flavo-testaceous, marked with three incomplete lines of punctures; corium flavo-testaceous, obsolete punctate with brown and with coarse brown punctures on the sutures; the cuneus whitish, pale piceous at tip, punctate exteriorly; costal margin strongly sinuated, pale testaceous; membrane brown; paler at tip and with interruptedly pale veins, particularly at base. Abdomen pale fulvous.

Length to tip of abdomen, $7\frac{1}{2}$ mm.; width of pronotum, $1\frac{3}{4}$ mm.

Type.—No. 3113, U.S.N.M.

Only two specimens of this insect are present in this collection.

EREMOCORIS PLANUS, new species.

Dull piceous-black, with the pronotum a little longer than wide and only a little narrower anteriorly, with the lateral margins strongly reflexed and testaceous. Head a little longer than the anterior lobe of pronotum, minutely scabrous, a little piceous at tip; antennæ stout, the joints pale at base, the second joint a little longer than the others, the basal joint thick and shortest; rostrum slender, fulvo-testaceous, black at tip, reaching to the middle coxæ. Pronotum sparsely punctate, dull blackish on the anterior lobe, and this has an indented dot each side of middle, anterior angles slightly rounded, posterior lobe obscure testaceous, punctate, feebly sinuated on the lateral margin adjoining the transverse suture, the posthumeral margin with a depressed lobe. Scutellum piceous, remotely punctate, depressed in the middle between a Y shaped carina which is protracted to end of apex. Corium dull blackish, with a large testaceous spot at base, deeply remotely punctate with black, base and apex of cuneus more or less testaceous, apex of clavus sometimes testaceous; membrane blackish-brown. Legs piceous, the tibiæ generally paler. Venter black, polished.

Length to tip of venter, $5-5\frac{1}{2}$ mm.; width of pronotum, $2\frac{1}{4}-2\frac{1}{2}$ mm.

Type.—No. 3114, U.S.N.M.

Four specimens belong to this collection.

Division PACHYGRONTHINA.

PACHYGRONTHA SIMILIS, new species.

Pale dusky testaceous, punctate with dark brown, more or less suffused with brown on the anterior portion of the pronotum. All the margins of the pronotum and the middle line which is abbreviated and more slender behind, an oblong diagonal spot in each basal angle and the carina of the apex of scutellum, exterior border of corium, and of the abdomen ivory yellow. Antennæ as long as the head, pronotum and corium united, honey yellow, minutely punctate with brown, the apex of the basal joint clavate and made black by the aggregation of punctures, second and third joints short, the third a little shorter, together about equal to the basal, the third nigro-piceous except the base, the fourth much shorter, nigro-piceous. Head roughly punctate with piceous in longitudinal series, the middle line and depressed border near the eyes pale and smooth, pubescence minute; rostrum mostly piceous, pale at base, reaching behind the anterior coxæ; throat unevenly granulate and punctate with piceous. Pronotum long, coarsely punctate with dark brown in transverse series, branded with piceous each side of the callous middle line, suture separating the lobes not deeply impressed, placed a little farther back and more distinct in the males, lateral margin reflexed, callous, the humeri with a piceous oblong callosity next the border; propleura evenly punctate with piceous, meso and meta pleura darker and more densely punctate. Anterior femora very thick, appearing piceous by reason of the numerous blackish punctures, armed with four larger teeth tipped with black and numerous smaller black teeth between them, anterior tibiæ short, curved, lined with black punctures, the other femora and tibiæ punctate with black, tips of tarsal joints piceous. Corium with a broad pale border, the costal area with one complete series and another half series of brown punctures, the tip linearly callous, pale, and having a minute brown dot at tip, and a larger one next the inner angle of membrane and a piceous thick line at tip of clavus, surface of both corium and clavus remotely punctate with brown in lines. Venter opaque, marked with a broad black vitta each side and with some spots along the middle and at tip.

Length to tip of abdomen, 7-8 mm.; width of pronotum, $1\frac{3}{4}$ -2 mm.

Type.—No. 3100, U.S.N.M.

PACHYGRONTHA ANTENNATA, Uhler.

Pachygrontha antennata, UHLER, Proc. Acad. Phila., 1860, p. 229.

Six specimens were secured for the collection.

Division HETEROGASTRINA.

CHAULIOPS FALLAX, Scott.

Chauliops fallax, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 428.

Three specimens of this peculiar species were collected.

Division LYGEINA.

AROCATUS MELANOSTOMA, Scott.

Arocatus melanostoma, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 21.

Only two specimens of this species were secured.

Subfamily LARGIDÆ.

PHYSOPELTA GUTTA, Burmeister.

Physopelta gutta, BURMEISTER, Nova Acta Acad. Leopold, XVI, 1834, Supp., p. 300, pl. XLI, fig. 10.

Two exceedingly large specimens of this species are present with four smaller varieties. This exceptional growth in size is recognized as a well-established fact in many other insects of Japan.

Family TINGIDÆ.

GALEATUS PECKHAMI, Ashmead.

Spharocysta peckhami, ASHMEAD, Ent. Amer., III, p. 156.

Four specimens were secured. I can find no structural differences to separate these from the veritable type as it occurs in lower Canada.

TINGIS PYRIOIDES, Scott.

Tingis pyrioides, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 440.

Four specimens are in the collection. This form belongs to the subgenus *Stephanitis* as established for European species by Dr. Stål.

CANTACADER LETHIERRYI, Scott.

Cantacader lethierryi, SCOTT., Ann. Mag. Nat. Hist., 1874, p. 443.

Four specimens were secured. It belongs to the well-distinguished division of the genus as recognized by Dr. Stål and later entomologists.

Genus PHYLLONTOCHILA.

PHYLLONTOCHILA DEBILE, new species.

Pale testaceous, marked with chestnut-brown, somewhat similar in form to *Monanthia dentata*, Fieber. Head narrow, pale chestnut-brown, pale each side, and with a short, pale, carinate process in front, superiorly; antennæ long and slender, with the apical joint fuscous; clypeus blackish-piceous, eyes brown. Pronotum wider than long, narrower than the base of hemelytra, opaque, with indistinct and small meshes; the hood wedge-shaped, narrow, directed straight forward to about the front of head; lateral wings nearly half as wide as the dorsal convexity, anteriorly produced, tapering forward, not quite as far as the hood, traversed by about four series of meshes; dorsal surface pale brownish, with small obscure meshes, and a pale middle-carinate line, which is

continued to tip of scutellum. Hemelytra gradually narrowing posteriorly, oval, with small meshes on the basal and discoidal areas and larger ones on the lateral areas and membrane; discoidal field a little dusky, so also the thick median vein and a quadrate spot before the middle of costal area; veins of membrane more or less dusky apically, about three to four series of meshes to the costal area. Legs testaceous, the tarsi black at tip. Abdomen blackish.

Length to end of wing covers, $3\frac{3}{4}$ mm.; width across middle of pronotum and the expansions, $1\frac{1}{4}$ mm.; width of base of wing covers, $1\frac{1}{2}$ mm.

Type.—No. 3117, U.S.N.M.

Only two specimens of this interesting species occur in this collection.

Family CAPSIDÆ.

LYGUS SIMPLUS, new species.

Flavo-testaceous, polished, tinged with ochreous and rufous, form of *L. sallei*. Signoret, coarsely punctate with brown over most of the upper surface. Head highly polished, moderately short, ochreous, vertex convex, compressed each side at base and on the middle, the occipital collar black, eyes large, extending beyond the width of pronotum; face directed obliquely, cheeks narrow, testaceous, tylus short, narrow, prominent; rostrum reaching to the middle coxæ, testaceous, darker at tip; antennæ a little longer than the coriaceous part of the hemelytra, mostly blackish brown, with the second joint paler, and the basal joint rufous, the second joint longer than the two apical ones united, pale at base, a little thickened apically, the third a little longer than the fourth, both filiform. Pronotum strongly convex, coarsely and not closely punctate, a little wider than long, the collum white, lateral margins smooth, curved, projecting over the large pleural flaps, the callosities of anterior lobe united into a prominent, polished tumidity of a piceous color, posterior margin depressed, sinuated against the base of scutellum, then curved each side, the edge pale and before it a fuscous, submarginal, incomplete line: pleural pieces bordered with white; sternum fuscous. Legs tinged with rufous, the tibiae paler, piceous at apex and at end of tarsi. Scutellum convex, highly polished, pale rufocastaneous, sparsely punctate, testaceous at tip and on the lateral edges. Clavus tinged with fuscous, corium obsolete punctate on the disk, tinged with fuscous toward the inner and outer borders and on the costal edge; membrane tinged with brown, and with a pale spot next the cuneous. Venter rufous, a little piceous near the apex.

Length to end of venter, 6 mm.; width of pronotum, $2\frac{1}{2}$ mm.

Type.—No. 3116, U.S.N.M.

Two specimens of this insect are present in the collection.

CALOCORIS VARIABILIS, new species.

Closely related to *C. seticornis*, Illiger, of Europe. Oval, moderately robust, polished, not distinctly punctate, most specimens deep black, with a yellow forked streak running from base over most of the clavus, the other limb extending along the costa until it connects with the yellow or orange cuneus. Head black, mostly polished, with a short neck behind the eyes, which are sometimes marked with a slender yellow band, front strongly convex, the middle sometimes with a round greenish spot, space beneath the antennae often pale; eyes brown, almost orbicular; rostrum piceous black, slender beyond the basal joint, reaching behind the middle coxae; antennae moderately thick, black, longer than the entire body and hemelytra united, the second and third joints very long, the second about as long as the clavus, the third a little shorter, the fourth much shorter. Pronotum polished, a little scabrous, with a few obsolete punctures near the suture, middle of the suture with a fulvous dot, lower margin of the propleura whitish, humeri rounded, mesopleura slenderly margined with white, the meta-pleura with a white triangular spot above the coxa. Legs black or obscure yellow, the tibiae often obscure yellow with black spines, while the femora are black. Scutellum sometimes tipped with yellow. Hemelytra minutely pubescent, membrane smoky black. Venter pitch black.

Length to tip of abdomen, 6-7½ mm. Width of pronotum, 2½-3 mm.

Type.—No. 3102, U.S.N.M.

Ten specimens were present in the collection. The female is sometimes uniformly black above and mostly so beneath. A variety has the legs pale fulvous and the antennae fulvous, with the bases of the two apical joints white. A male is yellow, with two black dots on the pronotum and black spots on the tergum, while the antennae are yellow, and the legs reddish yellow.

DICYPHUS LAUTUS, new species.

Elongate, subcylindrical, moderately robust, ivory whitish or pale yellow. Head suborbicular, with a contracted neck, which is scarcely longer than the eyes, and sometimes pale testaceous; vertex black at base, bounded in front by a yellow band; face dusky, bordered all around with black or brown; rostrum yellow, black at base, reaching to the posterior coxae; antennae long and slender, black, the basal joint rufopiceous, whitish at base, hardly half as long as the second, the second gradually thickening in the direction of the apex, the third abruptly slender, pale at base, much longer than the apical one; pronotum dull yellow, the anterior lobe very short and narrow, behind the collum transversely dusky and of the same color below; posterior lobe very convex, with a broad black curved submarginal spot, which is

interrupted on the basal middle and does not cover the humeral area; disk with a round black spot, lower lateral border bright yellow; sternum yellowish white; mesopleura bright orange; legs long and slender; the femora deep orange and crossed by one or two pale bands; tibiae pale yellow, piceous at tip; tarsi piceous at tip. Scutellum inflated, greenish yellow, with a black spot each side, another at base, and one at tip; clavus orange, blackish at base, on the inner margin, and on the tip, the outer margin deep black; corium whitish, with a large, angular orange area running from the middle of the disk back to near the inner angle with a triangular termination, the base of this spot bounded by a black band, which keeps out to near the costal margin, another black band crosses the whole width at base of cuneus, and the cuneus is broadly margined along the inner side with black; membrane mostly dusky black, the veins blacker interior of cell, a spot next the outer border, a slender scalloped transverse band across the apical margin of the cells and cunei white; tergum black, with a yellow stripe each side; venter yellow, somewhat blackish on the middle of connexivum.

Length to tip of abdomen, 5-6 mm.; width of base of pronotum, 2 mm.

Type.—No. 3101, U.S.N.M.

Nine specimens of this beautiful species are present in the collection. Both sexes are represented.

Family NABIDÆ.

CORISCUS TAGALICUS, Stål.

Coriscus tagalicus, STÅL, fügen. Resa. Ins. p. 261.

Ten specimens are present in the collection.

METATROPIPHORUS TABIDUS, new species.

Narrow, subcylindrical, pale testaceous, form narrower than *Coriscus capsiformis*. Head highly polished, chestnut brown, less brown behind the eyes; antennae setaceous, very slender throughout, nearly one-half longer than the body, dusky, a little darker at the tips of the first two joints; clypeous gradually narrowing toward the apex, dark piceous at base, paler at tip, very moderately curved; rostrum slender, reaching almost to the middle coxæ, testaceous obscured with brownish. Collum narrow, white, the anterior lobe of pronotum very convex, polished, chestnut brown, much shorter and somewhat narrower than the posterior lobe, constricted behind, the posterior lobe subtriangular, distinctly punctate, dull, with the middle line and lateral margins pale testaceous, posterior middle impressed, the humeri prominent; propleura testaceous, brown above, meso and meta pleura piceous; coxæ and legs yellowish testaceous, spines of femora and tibiae brown, apex of tarsi piceous. Scutellum a little punctate, pale chestnut brown, testaceous at tip. Wing covers testaceous, clavus tinged with brownish, slightly punctate, the coarse bounding lines piceous, veins piceous,

the corium dusky on the disk and with a large dusky patch near the tip; membrane longer than the abdomen, clouded with dusky. Tergum blackish on the disk, pale on the connexivum; venter testaceous.

Length to tip of abdomen, $5\frac{1}{2}$ –6 mm; width of pronotum, $1\frac{1}{4}$ mm.

Type.—No. 3112, U.S.N.M.

Only three specimens of this species were secured.

Family REDUVIIDÆ.

PTILO CERUS IMMITIS, new species.

Form of and closely related to *P. fuscus*, Gray; dull pale yellowish brown tinged with fuscous; densely hairy; tip of clavus with a black dot, and base of cuneus with an oblong black spot, outer border behind this spot yellow; membrane large and soot-black. Hairs of antennæ long and slender, gradually growing shorter toward the tip.

Length to tip of venter, 6 mm.; width of pronotum, 2 mm.

Type.—No. 3115, U.S.N.M.

Two specimens of this peculiar insect are in the collection.

VELINUS NODIPES, Uhler.

Velinus nodipes, UHLER, Proc. Acad. Phila., 1860, p. 230.

Eight adult and three undeveloped specimens are in the collection.

HARPACTOR ORNATUS, new species.

Jet black, polished, robust, sparsely hoary pubescent. Head moderately short, a little inflated behind the eyes, the occipital portion forming a short neck, space between the ocelli yellow and sunken, face and clypeus tapering anteriorly, together a very little longer than the division behind the eyes; antennæ black, slender, as long as the abdomen and posterior lobe of pronotum; rostrum thick, black, reaching almost to the anterior coxæ. Pronotum broad, the lateral margins of posterior lobe broadly reflexed, rufous, the posterior margin narrowly rufous, middle line broadly grooved, the anterior lobe deeply excavated, ridges each side high and curved; supra-coxal border above the fore legs ivory yellow, meso-pleural border narrowly yellow. Legs black, the femora thick and somewhat knobby. Scutellum polished like the pronotum, deeply sunken at base. Hemelytra entirely deep black, the membrane barely longer than the abdomen. Outer border of the abdomen broadly rufous, the remaining surface black, highly polished.

Length to tip of abdomen, 13–14 mm.; width of pronotum, 4 mm.

Type.—No. 3107, U.S.N.M.

Four specimens of this species are in the collection. The male is a little smaller than the female, has the posterior red border of the pronotum wider, and the same color of the connexivum waved on the inner margin.

PROCERATES, new genus.

Form of a broad *Harpactor*, but with the head short and wide before the eyes, incised between the eyes, with a stout spine at base of each antennal lobe, the space between them excavated, anterior lobe much shorter and a little narrower than the posterior one, convexly elevated, neck short and thick, clypeus bluntly rounded, the rostrum thick, reaching between the anterior coxæ, with its basal joint longer than the two others united; antennæ of medium length, the basal joint as long as the second and third united, the third much shorter than the second. Abdomen broad oval, thin, wider than and shorter than the wing-covers. Sides of prosternal groove lamellar. The venation and other characters are like *Harpactor*.

PROCERATES RUBIDA, new species.

Cinnabar red, smooth, and polished, with the upper surface minutely scabrous. Antennæ, excepting the basal lobe, legs, membrane, two apical joints of rostrum, sides of throat, disks of pleural lobes, and four short bands on the first four ventral segments black, surface, both above and below, a little pubescent. Eyes brown. Tips of spines of head black. The amount of black on the pectoral pieces and venter varies in the different individuals. Lateral angles of pronotum relieved.

Length to end of abdomen, 11–14 mm.; width of pronotum, $3\frac{1}{4}$ –4 mm.

Type.—No. 3109, U.S.N.M.

Six specimens of this brightly colored species were secured for this collection. The males are much narrower than the females.

LARYMNA HÆMATOGASTER, Burmeister.

Larymna hematogaster, BURMEISTER, Nova Acta Leopold, XVI, 1834, Supp., p. 301.

Eight specimens of this variable species were secured.

SPHEDANOLESTES IMPRESSICOLLIS, Stål.

Sphedanolestes impressicollis, STÅL, Stettin. Ent. Zeit., XXII, 1861, p. 147.

Eight specimens are in this collection.

HAEMATOLÆCHA NIGRO-RUFA, Stål.

Haematolæcha nigro-rufa, STÅL, Ofv. Akad. Forh., 1866, p. 301.

Two specimens are the only ones in the collection.

PIRATES SINICÛS, Walker.

Pirates sinicus, WALKER, Brit. Mus. Cat. Heteropt., Pt. VII, 1873, p. 121.

Seven specimens of variable pattern of coloring are in the collection.

ONCOCEPHALUS SQUALIDUS, Rossi.

Oncoccephalus squalidus, Rossi, H. Schf. Wanz. Ins., VIII, p. 93, fig. 861.

Two specimens of the brachelytrous form of this well-known European species are in the collection.

ACANTHODESMA, new genus.

Somewhat resembling *Sulyavata*, but is a true member of the family *Stenopodidae*. Form elongate suboval, with a long spine each side behind base of antennae, and surface of head with numerous spines on the crown and sides; head short, longer behind the eyes than before them, bristly, carinated on the middle line; antennae slender, but not setaceous, as long as the body without the head, basal joint very short, second as long as the pronotum and head together, third and fourth together about equal to the second, but thinner and filiform, rostrum very stout, a little curved, the basal joint longer than the others conjoined, the apical joint touching the space between the anterior coxae. Pronotum bristly hirsute, subtrapezoidal, a little longer than wide, the anterior lobe much shorter than the posterior one, deeply sunken along the middle and sinuated next the head, with the anterior angles carinate and a little produced, behind each angle a long, erect spine followed behind by three or more shorter ones; posterior lobe with a ridge each side and a wide deep groove on the middle line, followed behind by a shallow, depressed, wide area which is terminated each side before the base by a long erect spine, middle of each lateral margin with a spine, humeral angles with a longer oblique spine. Femora with series of strong spines both below and above, tibiae with bristles and very slender spines, the anterior pair with two series of oblique, long spines, middle tibiae much shorter than the others. Scutellum longer than wide, sinuated each side behind the middle, with the margins callous and reflexed, spinous and with a long spine each side and at tip, veins of corium slender, long, forked, and slightly divaricating posteriorly, veins of the membrane long, the middle ones twice forked, the divaricating branches running backward instead of toward the tip. Margin of abdomen close set with spines, one series of which consists of a few longer ones, apex of venter with a long spine each side and in the male two approximate slender spines on the middle of the tip, apical margin of the female with six short ones between the two outer spines.

ACANTHODESMA PERARMATA, new species.

Pale dull grayish-yellow, with the spines, the middle line of head, sides of face, pubescence, carinate edge, and lines of pronotum and scutellum and line bounding the connexivum whitish yellow. Antennae dusky yellow, the second joint thicker than the others and armed with series of stiff bristles. Tips of spines black, acute. Pronotum clothed with shaggy pubescence, median depression margined with acute carinae, the surface next outside of these ridges broadly and less deeply, longitudinally, channeled, lateral margin with a slender raised line, posterior margin truncated, a pale line runs back from each of the two middle posterior spines. Scutellum with long hairs, margined with pale testaceous. Lower border of pleura, and the matted hairs,

pale. Wing-covers pale inwardly, the membrane correspondingly pale and with dark veins, the middle longitudinal vein thick, prominent, pale, darker toward the tip, the costal and vein bounding the inner side of costa thick, dark, pale at base. Connexivum pale, marked before the tip with a fuscous streak and next the tip with a similar curved streak: sides of venter with pale and brown alternating lines which are less distinct toward the disk.

Length to tip of abdomen, 10–11 mm.; width of pronotum, 2–2½ mm.

Type.—No. 3108, U.S.N.M.

A male and female are the only specimens of this form present in the collection. This insect deserves special attention from the unusual number of attachments to the several parts of its organs. It should be studied in its different stages to ascertain the meaning of the peculiar elements of structure which appear in the adult form.

Subfamily EMESSINA.

ORTHUNGA BIVITTATA, new species.

Pale yellowish testaceous with an ashy tinge, long and more robust than *Stenolemus* which it much resembles. Head highly polished and brown between the eyes, anterior lobe short, prominently convex, eyes brown, posterior lobe longer, gradually contracting posteriorly; clypeus narrow, pale testaceous; antennae setaceous, much longer than the body, tinged with brown; rostrum reaching behind fore coxae, thick on the two basal joints, both of these brownish and paler on the ends, the second shorter than the basal, swollen, the third abruptly more slender, acute. Pronotum bicampanulate, emarginate, and inflated anteriorly, constricted in the middle, more than twice as long as the head, brownish, polished, lineated with two whitish stripes which run parallel with the varying outline of the two lobes and connected on the front margin of the anterior lobe by a transverse whitish band, the posterior lobe much wider than the anterior one, and with the humeral angles tumidly prominent, lateral margins also whitish. Posterior pairs of legs long, very slender, pubescent, the femora twice banded with brown, the tibiae paler at base, fore legs short, the femora subfusiform, armed beneath with slender spines tipped with black coxae with two dusky bands. Scutellum pale brownish, the basal lobe tumido-convex. Wing-covers pellicular, whitish translucent, widening and curving posteriorly, with brown veins. Abdomen dusky, pubescent, subcylindrical and thicker posteriorly.

Length to end of abdomen, 16½ mm.; to tip of wing-cover, 17½ mm.; width of base of pronotum, 2 mm.

Type.—No. 3110, U.S.N.M.

Only one specimen of this spider-resembling insect is present in the collection.

EMESA MARCIDA, new species.

Slender, moderately short, dull yellowish testaceous, the sides with a slender black line throughout, including the head. Antennæ exceedingly slender, a little shorter than the body; head about half as long as the anterior division of the pronotum, a slender reddish-brown line each side of middle, the vertex and front of nearly equal length and width; eyes very small. Thorax, dusky each side, and with a slender red line along the middle. Anterior femora with a blackish line each side inferiorly, and a red line above, armed beneath with long and short black-tipped teeth; tibiæ about one-third the length of femora, dusky at base and tip; tarsi slender, dusky at tip. Wings not present. Middle and posterior femora twice banded with dusky near the tip; tibiæ with four dusky bands basally. Tergum with two slender black lines, and two red lines exterior to the others, angles of the segments with piceous nodes; venter more or less dusky.

Length to end of abdomen, 18 mm.; width of pronotum, $\frac{3}{4}$ mm.

Type.—No. 3111, U.S.N.M.

Three specimens are in the collection. They seem to be nymphæ, and have no vestige of wing-covers.

Family HYDROMETRIDÆ.

LIMNOBATES VITTATA, Stål.

Limnobates (Hydrometra) vittata, STÅL, Hem. Iresul. Philipp, p. 705.

Eight specimens of this neat and slender species were placed in the collection.

Family HYDROBATIDÆ.

HYGROTRECHUS REMIGATOR, Horvath.

Hygrotrechus remigator, HORVATH, Ent. Soc. Brux. C. R., 1879, p. cix.

Six specimens of this insect are in the collection.

LIMNOTRECHUS ELONGATUS, new species.

Olivaceous blackish-brown, opaque, elongated. Head moderately long, gently curving before the eyes, occipital lobes large, entering the sinus of the eyes and bounded inwardly by a curved, fulvous, impressed line which crosses the middle; eyes hemispherical exteriorly, bounded by a fulvous line interiorly, front bilobed, indented each side behind, and with a slight knob before each indentation; apex of face fulvous, coated with silvery, rostrum reaching behind the anterior coxæ, brown, pale fulvous at base, the short apical joint black; cheeks mostly yellow, the throat silvery whitish; antennæ brownish-black, very slender, as long as from the tip of face to the end of posterior coxæ, basal joint as

long as the posterior lobe of the pronotum without the scutellum, second joint a little more than one-half the length of the first, the shorter, the fourth slenderly tapering, nearly as long as the second. Pronotum depressed, strongly carinated, slenderly margined with yellow and with a yellow stripe on middle of anterior lobe, posterior lobe uneven, the exterior margin and middle line black; scutellum rusty-fulvous behind, bounded by a reflexed black margin; humeral angles tumid, blackish, broadly bordered exteriorly with yellow; pectus grayish silvery, the antepectus entirely yellow. Coxæ with a large yellow spot, trochanters and base of femora also yellowish; pleura with a continuous broad black stripe superiorly. Legs very long, blackish-brown. Hemelytra a little shorter than the abdomen, brown, with the veins black. Tergum black, with the exterior raised margin yellow, the apical portion with two pale lines, the genital segments margined with fulvous, apical processes slender, a little longer than the genital segments: venter bluish-gray, with a stout fulvous carina on the middle line, the last segment deeply excavated, bordered with fulvous, the two genital segments fulvous and hairy; the lateral submargin interruptedly black posteriorly.

Length to end of venter, 23 mm.; width of pronotum, $3\frac{1}{2}$ mm.

Type.—No. 3105, U.S.N.M.

Two males are in the collection.

Family NEPIDÆ.

LACCOTREPES JAPONENSIS, Scott.

Laccotrepes japonensis, SCOTT, Ann. Mag. Nat. Hist., 1874, p. 430.

Four specimens are in the collection from southern Japan.

RANATRA CHINENSIS, Mayr.

Ranatra chinensis, MAYR, Novara Reise, Hem., p. 191, pl. v, fig. 59.

One specimen agreeing exactly with types from China is in the collection.

RANATRA BRACHYURA, Horvath.

Ranatra brachyura, HORVATH, Termesz. Fozetek., 1879, III, p. 10, No. 73.

A broken specimen is in the collection.

Family BELOSTOMATIDÆ.

BELOSTOMA DEYROLLII, Vuillef.

Belostoma deyrollii, VUILLEF, Ann. Soc. Ent., France, 1864, p. 141.

Three specimens are present. This is a common species in the waters of southern Japan.

APPASUS JAPONICUS, Vuillef.

Appasus japonicus, VUILLEF, Ann. Soc. Ent., France, 1864, p. 141.

Two specimens of this common species are in the collection.

Family NOTONECTIDÆ.

NOTONECTA TRIGUTTATA Motschulsky.

Notonecta triguttata, MOTSCHULSKY, Etud. Entom., 1861, p. 24.

Only a single specimen is in the collection, but it is not rare in southern Japan.

ANISOPS SCUTELLARIS, Billbg.

Anisops scutellaris, BILLBG, Herrich-Schäffer, Wanz. Ins., IX, p. 41, pl. CCXCIV, fig. 906.

Two specimens are in the collection.

Genus CORISA.

CORISA SUBSTRIATA, new species.

Dark brown above, testaceous on the head and beneath, form of *C. striata*, Fieber. Head moderately blunt, the vertex wide, coarsely carinated, and with an acuminate, brown callosity on the middle of the posterior margin, each side of the carina is an impressed, punctate line, another near the eye and an indentation, each side, next the occipital reflexed border; face moderately convex, hairy below, highly polished. Pronotum dark brown, moderately short, triangularly rounded behind, radiated, crossed by seven somewhat curved, slender yellow lines, of which the two discoidal ones are sometimes interrupted at the inner end apex with a very short yellow line, the margins dark brown, the middle anteriorly with a short callous carina, the lateral pieces narrow triangular, ivory white. Legs pale testaceous, fringe of the posterior tarsi blackish, pale of the male narrower than in the female, falcate, a little curved toward tip, with the tibiae thick and curved. Wing-covers, dark brown, rastrate, base of clavus crossed by about six yellow, nearly entire and straight lines, the remainder is marked with short wavy bands decreasing to a single series toward tip; corium with two or three series of well separated wavy bands; membrane with the flexed bands shorter, less regular, and more widely separated, sutures all pale yellow; embolium yellowish white, terminated by an aggregation of blackish marks in a long spot which is connected with a slender series of points which sometimes extend back to near the base. Venter pale testaceous. Facial fovea of the male subtriangular, short, narrow, shallow.

Length to tip of abdomen, $5\frac{1}{2}$ –6 mm.: width of pronotum, 2 mm.

Type.—No. 3106, U.S.N.M.

Fourteen specimens are present in this collection. One of these has a black stripe on the vertex.

Suborder HOMOPTERA.

Family CICADIDÆ.

PLATYPLEURA REPANDA, Linnæus.

Platypleura repanda, LINNÆUS, Syst. Nat., 12 ed., p. 707.

Nineteen specimens of this common but showy species are in the collection.

POMPONIA JAPONENSIS, Distant.

Pomponia japonensis, DISTANT, Monog. Orient. Cicad., 1892, p. 102.

Nine specimens are in the collection.

POMPONIA MACULATICOLLIS, Motschulsky.

Pomponia maculaticollis, MOTSCHULSKY, Bull. Soc. Nat. Moscow, 1866, p. 185.

Five specimens were secured for this collection.

COSMOPSALTRIA OPALIFERA, Walker.

Cosmopsaltria opalifera, WALKER, Brit. Mus. List Homopt., I, p. 56, No. 16.

Ten specimens of this fine insect grace the collection.

CRYPTOTYMPANA PUSTULATA, Fabricius.

Cryptotympana pustulata, FABRICIUS, Ent. Syst., IV, p. 20, No. 11.

Nine specimens of this common Chinese species are in the collection.

TERPNOSIA PRYERI, Distant.

Terpnosia pryeri, DISTANT, Monog. Orient. Cicad., 1892, p. 139, pl. XV, fig. 5.

Twelve specimens were placed in the collection.

GRAPTOSALTRIA COLORATA, Stål.

Graptopsaltria colorata, STÅL, Berlin, Ent. Zeit., 1866, p. 169.—DISTANT, Monog. Orient. Cicad., p. 25, pl. II, fig. 8.

Nine specimens were taken for this collection.

MELAMPSALTA RADIATOR, new species.

Form of *Cicada montana*, Hagen, but a little broader, more generally covered with silvery whitish scales, which easily rub off, and with the apical valvular ventral segment of the male short. ovate, not tapering at tip, and with the opercula longer, forming curved lobes which approach but do not touch on the middle line of venter. General surface black, polished, with the venter pale fulvous. Vertex a little broader than long, with the apex and base each with a yellowish spot, the latter being placed in an oval cavity, the supra-antennal lobes narrow, testaceous, front moderately blunt, broadly margined with yellow, sulcate

on the middle line above, and over this is a large yellow spot, the transverse carinate lines and grooves distinct, rostrum black, reaching to the middle coxæ. Legs greenish, with the base and apex of femora and some lines along their surface, knees, tips, and sometimes the middle of tibiæ, base and tip of tarsi, besides the nails, and the three spines of anterior femora, black, the inner spine much longer than the others. Pronotum bordered behind and on the sides with greenish yellow, mesonotum with a deltoid yellow spot each side of disk, connecting with a slender line which continues back to the borders of the cross, and from thence on the posterior and lateral carinate borders. Wing-covers with large and often irregular meshes, the apical series beginning with a moderately short triangular one, and followed by longer curved ones to the inner bend of the margin, the costal vein greenish yellow, veins dark brown, yellow basally, and including the membranes, wings with brown veins, the inner area striped and margined with smoke brown, the basal membrane reddish, a streak (margined with fuliginous) running out from it, pale plumbeous. The *inner alulet* is large, ovate, bounded by a coarse vein, and traversed by numerous long veins. Abdomen long and narrow, with middle of venter striped with a series of black spots.

Length to tip of abdomen: Male, 20 mm.; female, 22 mm. Spread of wing-covers, 55-57 mm.

Type.—No. 3105, U.S.N.M.

Nine specimens of this interesting form are in the collection. The female has a much longer and more slender spur at apex of the tergum than in the male. In this species the two ulnar veins are separated at their origin on the angle of the basal areole, and the inner alulet (*schlussfeld*) of the wing is broadly rounded and traversed by eight or more very slender veins, forming long areoles.

Family FULGORIDÆ.

Subfamily RICANIIDA.

RICANIA EPISCOPALIS, Stal.

Ricania episcopalis, STÅL, Ofv. K. Vet.-Akad. Forh., 1865, p. 162, No. 5.

Fifteen specimens of this showy species are in the collection.

RICANIA ALBOMACULATA, new species.

Similar to *Ricania fuscata*, Fabricius, but the wing covers shorter and more bluntly rounded at apex, paler smoke-brown, with a subtriangular, ragged white spot near the middle of the costal margin. Vertex short, the anterior margin acutely carinate, especially at the angle next the eye; front rusty brown, a little wider than high, flat, carinate on the middle line, with the lower part of lateral margin curved and the inferior margin concave, each side near superior margin is an obsolete

curved line, epistoma pale orange-yellow, the rostrum still paler, reaching to the middle coxæ. Notum brownish-black, opaque, with a carina on the middle extending to the tip of scutellum. Under side and legs pale brownish. Venation of wings close, like that of *R. fuscata*, Fabricius. Abomen brownish, paler at base.

Length to end of abdomen, 7-8 mm. Expanse of wing covers, 23-26 mm.

Type.—No. 3122, U.S.N.M.

Fourteen specimens are in the collection. They exhibit very slight variation, and that appears to be due to maturity of coloration. This consists of greater depth of tint and thicker coating of bluish bloom. The segments on the dorsal line of abdomen are a little callous and produced over the sutures. In a few specimens the wings are paler than the wing-covers.

Subfamily FLATIDA.

PŒCILOPTERA DISTINCTISSIMA, Walker.

Pæcioptera distinctissima, WALKER, Brit. Mus. List, Supp., p. 114.

Fifteen specimens of this delicate green insect adorn the collection.

Subfamily DICTYOPHARIDA.

DICTYOPHARA INSCRIPTA, Walker.

Dictyophara inscripta, WALKER, Brit. Mus. List, Hompt., I, p. 322, No. 38.

Six specimens are in the collection.

ORTHOPAGUS, new genus.

This is a long and narrow form with a more open venation than in *Dictyophara*, and with wing-covers gradually widening toward the almost semicircular apex. Head longer than wide, about one-fourth longer than the pronotum, the surface sunken, with the lateral margins strongly carinate, a keel throughout the middle line, and tip of vertex truncated, the summit of front projecting before the end of vertex; the front is long and narrow, sinuated each side before the eyes, with three prominent carinate lines throughout the length, the two lateral ones gradually approaching below, and the lateral margins strongly reflexed, and so continued to the apex of the clypeus, the clypeus short, carinate on the middle, acutely curving toward the tip; inferior cheeks long, narrow, sunken throughout; antennæ, the second joint large and subglobose, with a collar-like joint at base, an ocellus is situated beneath and near the front curve of eye, frontal ocellus absent; rostrum slender, reaching behind the posterior coxæ. Pronotum short, saddle-like, deeply triangularly emarginated behind, carried forward in an acute triangle between the eyes, carinate on the middle, the side-flaps beneath the carina oblique, longer than wide, ovate, with the narrow end directed anteriorly; dorsolum of the mesonotum longer than wide,

angularly suboval, with the middle line and outer boundaries carinate; scutellum small, triangular, flat. Posterior tibiae long, prismatic, armed on the outer edge with six stout spines, basal joint of tarsi longer than the second and third united, bordered by a rib which at tip projects back as a spine. Wings long and narrow, gradually widening posteriorly, transverse veins few, confined to the apical division, the basal cell long and narrow, the radial vein uniting with the superior ulnar before reaching the cell, the inferior ulnar more widely separated from the superior than the radial is; the pterostigma much longer than wide, subovate, acute at tip, three or four celled, the middle cell largest, a single cross vein exists on the discoidal area.

ORTHOPAGUS LUNULIFER, new species.

Surface pale clay yellow, or testaceous, marked with brown. Head elongated, the vertex about one-third longer than wide, brown, bordered with pale yellow, sunken, the carinate lines of border and middle high and dark brown, apex with a small knob; front and clypeus pale clay yellowish, with a broad whitish crossing the apex of front base of clypeus and the cheeks, the three carinate lines and outer carinate margins dotted with brown; rostrum pale testaceous, flecked with brown, and with a brown tip. Pronotum unevenly ribbed and grained with brown, the middle carina marked with brown spots, mesonotum with the carinate lines paler than the surface, the scutellum smooth and white. Wing-covers obscurely hyaline, with the pterostigma, a wide sublunate spot which covers the apex inferiorly, and the posterior margin more faintly, brown, a whitish double spot appears on the inner curve of the brown spot, and most of the cross veins are whitish; apex of the wings with a narrow brown are and brown veins. Legs pale yellow, banded and marked with brown, the tibial spines, spurs, base, and apex of tibiae and tip of tarsi dark brown. Abdomen flattened, the tergum with large spots, streaks, and margins of segments brown; venter with large and small brown spots. Mesopleura with a broad brown band which connects with that upon the clypeus, numerous brown spots are distributed over the remainder of the pleural and sternal segments.

Length to apex of abdomen: Male, 9; female, 10 mm. Expanse of hemelytra, 24-25 mm.

Type.—No. 3123, U.S.N.M.

The wing-covers of some specimens are somewhat suffused with yellow, and the posterior edge of the wings is dark brown.

Subfamily CIXIIDA.

CIXIUS SUBNUBILUS, new species.

Moderately robust, chestnut brown a little polished, invested posteriorly with the usual white cottony secretion, the under side dark brown, with the metasternum occupied by a large pale spot. Vertex

about one-fourth longer than wide, a very little narrowing anteriorly, deeply grooved, with high lateral margins; dark brown, bordered with pale yellow, the posterior end deeply, triangularly emarginated: front subelliptical, acutely tapering below, dark brown, with a large, oval, testaceous spot below the middle, continued down upon the clypeus, the middle carina very prominent, pale inferiorly, with a short fork at the summit, the surface is deeply scooped out, leaving the margins very prominently carinated: clypeus continuing the lines of the front to a very acute apex: rostrum pale fulvous, piceous at tip, reaching almost to apex of anal segment. Pronotum very short, deeply emarginated, the sides curving, widening exteriorly and bounded by paler carinate lines, the lateral flaps flat, longer than wide, subquadrangular, the surface dark brown, bordered with yellowish: mesonotum trapeziform, acute-angled, dark brown, with five medial carinate lines, of which the middle one is darker than the others, the scutellum acute, pale yellowish, and bordered with a narrow carinate edge. Femora dark brown, pale at base and tip; tibiae pale brownish, faintly banded with brown near base and tip, tarsi very long, yellowish. Segments of pleura and abdomen slenderly edged with yellowish. Wing-covers milky hyaline, the veins coarse and dark brown, pterostigma large, dark brown, pale at base, inner transverse veins of the apical series mostly marked with a small brown spot, one or two similar spots near the disk, and some brown vestiges around the posterior border and on the edge.

Length to end of abdomen, 7 mm. Length to tip of wing-covers, 12 mm.

Type.—No. 3124, U.S.N.M.

Three specimens are in the collection. The usual cottony secretion is present at the tip of the abdomen.

COTYLECEPS MARMORATA, new species.

A narrow-bodied chestnut-brown form with pale, testaceous, mottled, and granulated wing-covers, and smoke-brown wings, which might be confused with some forms of the Phryganid genus *Hydropsyche*: at rest the wing-covers are held nearly vertical. Head compressed above, dark brown, vertex with almost foliaceous sides, deeply sunken longitudinally, gaping posteriorly, forming a high rounded lobe above the eyes, and is marked with two or three whitish streaks, front deeply grooved, brown, gradually widening and curving toward the clypeus, mottled and streaked with whitish next the border, clypeus narrowing belong in continuity with the lines of the front, terminating in an acute tip, paler below; the rostrum pale yellowish, reaching upon the genital segment. Pronotum almost lamellar, formed of a lobe each side, acutely elevated in the middle and very short there, deeply emarginated, the lateral flaps separated from the dorsal surface by an acute carina, the lateral flaps broad and long, yellow, curving downward, with carinate

margins; mesonotum subequilateral, with the anterior angle produced over the head, with the lateral margins carried back in a small sinus which is followed behind by a larger sinus, the edge carinated, the middle line and a diagonal line each side of it strongly carinated, scutellum triangular, curved upward. Wing-covers very moderately widening toward the apex, a little concave on the posterior margin, clouded with pale brown, the pterostigma orange, dark brown at base and apex, and a smaller orange and brown spot on the opposite (hind) border, a subdeltoid spot on apical border connected behind with other dark-brown patches, and preceded next the costa by a brown arc, basal third of wing-cover with several flexed, pale-brown marks, veins dotted with brown; wings smoke brown, paler at base, veins darker. Abdomen bordered and banded with yellow.

Length to end of abdomen, 5-6 mm. Expanse of wing-covers, 13-16 mm.

Type.—No. 3131, U.S.N.M.

Four specimens of different sizes and varying markings are in the collection.

MYNDUS APICALIS, new species.

Form normal, ground color blackish brown, dull. Vertex moderately narrow, a little wider behind, with yellow carinate margins, and the base acutely emarginated and upturned on the apex of the emargination; eyes large, round, bordered by a carina around the socket; front wide, broadest in the middle, with a carinate middle line which is paler and continued to the apex of the clypeus, the lateral margins fulvous, carinately reflexed; rostrum dull testaceous, piceous at tip, reaching to the posterior coxæ. Pronotum narrow, carried triangularly upon the grooved vertex, the margins fulvous; mesonotum with five fulvous carinate lines, rather close together; the scutellum testaceous, bluntly triangular. Legs fulvo-testaceous, darker at ends of femora and tibiae. Wing-covers milky-whitish, or yellowish, two specimens dusky at tip, veins brown toward the apex, with dark brown ends to the apical ones, and five cross streaks on the bases of the apical areoles, costal area crossed by a single stout vein; wings with the veins darker at tip, and sometimes with a wide dark suffusion at that point. Legs dusky yellowish, the femora darker. Abdomen brownish black, depressed, covered at tip with cottony white secretion.

Length to tip of abdomen, 4 mm.; width of mesonotum, 1½ mm.; length to tip of wing-covers, 6-7 mm.

Type.—No. 3121, U.S.N.M.

Five specimens are present in the collection.

Subfamily ACHILIDA.

CATONIDIA, new genus.

Form of *Achilus*, Kirby; vertex short, transverse, carinated, curved, but little raised above the level of eyes, carinated on all the borders, the front long wedge-shaped, with a middle carina percurrent to tip

of clypeus, and divided by the transverse suture, the lateral margins strongly reflexed, a little curved, rostrum slender, longer than the face and clypeus together, cheeks deeply sunken throughout, curved, acutely tapering; antennæ second joint subglobose, a little longer than wide, the following joints very slender, setaceous. Pronotum nearly twice as long as the vertex, with the anterior shield lunate, the sides beyond this curving, ending triangularly, and bounded by a thick carina, the lateral flaps small, subtrapezoidal, curved on the lower margin; mesonotum ample, a little wider than long, triangular in front and laterally, the middle shield carinate on the middle and sides, running back triangularly against the narrow and small scutellum, before which it is moderately sinuated. Wing-covers expanded from the tip of clavus to apex of membrane, bluntly rounded, costal area broad, crossed at the apex by a few diagonal and bent veins, and these are continued by an apical series of straighter veins which bound the marginal row of small areoles, the areoles next before these long and narrow, mostly acute at the inner end, the one next the inner border very long, much wider at tip. Legs moderately short, slender, the femora compressed, almost prismatic, carinated, the tibiæ carinate, the posterior ones with a single tooth nearer the tip. Abdomen depressed, the connexivum wide and thin.

* **CATONIDIA SOBRINA**, new species.

Pale fulvo-testaceous, more dusky above. Head short, carinate on the middle line of the vertex, polished, pale testaceous, face minutely scabrous; rostrum reaching to beyond the apex of the posterior coxæ, brown at tip. Pronotum pale, polished, with a carina on the middle; mesonotum almost flat, pale fulvous, convex around the anterior curve, the scutellum scooped out, and with thick carinate margins. Wing-covers dull brownish testaceous, dusky at apex, the veins pale, dotted and flecked with brown, those bounding the apical series pale testaceous, the two principal ones of the clavus thick, dotted with brown; wings dusky, darker at tip, and with dark brown veins. Tibiæ and tarsi a little dusky. Venter darker in the middle, pale on the sutures.

Length to end of abdomen, 7 mm.; width of mesonotum, $3\frac{3}{4}$ mm.; length to tip of wing-covers, 10 mm.

Type.—No. 3118, U.S.N.M.

Only two specimens of this form are in the collection.

Subfamily ISSIDA.

HEMISPHERIUS FLAVIMACULA, Walker.

Hemispharius flavimacula, WALKER, Brit. Mus. List. II, p. 378.

Seven specimens of two or three varieties are in the collection.

Subfamily DERBIDA.

OTIOCERUS FLEXUOSUS, new species.

Somewhat resembling *O. coquebertii*, Kirby, but of smaller size, having the head composed of a foliole of a broad oval form destitute of an angle at the upper extremity, and with the milky-white wing-covers marked with a flexuous red line, which starts beyond the base and extends out to the forward margin of the apex, a large red spot is present on the opposite side of the apex, and a red trace a little way from the base. Head with a red spot along the fore border of the foliole; principal joint of antennæ ligulate; clypeus yellowish white. Legs and abdomen yellowish white. Genital attachments of the male long, slender, curved, the upper one single, broad ligulate, grooved. Ground color of wing-covers and wings milk white.

Length to tip of abdomen, 4 mm.; expanse of wing-covers, 16 mm.

Type.—No. 3120, U.S.N.M.

Only two specimens of this delicate insect are in the collection.

DIOSTROMBUS, new genus.

Somewhat resembling a *Termes* in the form of the wing-covers, but with a short, ovoid body. Head roundish above, including the large eyes, prominent in front, where it is grooved on the middle line, a little wider above, and carinated on each lateral margin; below this, including the clypeus, beak-shaped, flattened on the sides; very long, and continued by a stout rostrum which extends to the posterior coxæ; antennæ, second joint stout, claviform, and completed by a very slender bristle; eyes broadly circular, the vertex emarginated behind. Pronotum moderately short, emarginated in the middle so as to appear bilobed; mesonotum large, tumidly convex, the scutellar portion very broadly curved. Legs slender, the posterior tibiæ stoutest, armed with two stout teeth at the tip. Costal area of the wing-cover contracted for a long space beyond the middle, followed near the tip by two diagonal veins, the posteostal area continuous to near the tip, crossed before the middle by a single vein, and at tip bounded by two small areoles, the basal areole long and widening toward the apex, from which four veins run acutely oblique outward toward the apical one-fourth of the wing-cover, and followed by four others, which complete the series on the apical portion; all but the two short apical veins are connected by single cross-veins; wings very small, narrow. Abdomen contracted near the base, tumidly obese behind this stricture, the apical abdominal segment deeply and broadly sinuated behind, and on each side of this with a large curved lamella, last ventral segment armed each side with a long, curved appendage.

DIOSTROMBUS POLITUS, new species.

Bright rufofulvous, or dull orange, highly polished. Head *Asili-form*, the clypeus pale yellow, carinate on the middle line, long triangular, a little curved; rostrum dusky at tip; eyes black. Notum a little darker than the rest of the body. Anterior and middle tibiae and tarsi dark brown; spurs of the pale posterior tibiae dusky at tip, tarsi dark at tip. Wing-covers tinged with pale brown, the veins dark brown, the costal area yellowish; wings bordered posteriorly with brown; postcostal vein stout, blackish brown, especially at tip, where the apical veins are also coarse and dark.

Length to apex of abdomen, 4 mm.; expanse of wing-covers, 19 mm.

Type.—No. 3119, U.S.N.M.

Four specimens are in the collection.

Family MEMBRACIDÆ.

ORTHOBELUS FLAVIPES, new species.

Form similar to *O. haranensis*, Fairmaire, but with the humeral processes shorter, oblique, curved, sharp-edged, and acute at tip. Color black or blue black, closely covered with fine bronze pubescence. Head short, coarsely punctate, uneven, with the lobes of each side of lateral margin reflexed; eyes brown, prominent; clypeus tufted with coarse, long pubescence. Pronotum roughly and coarsely punctate throughout, with the posterior process long, slender, carinate above and on the edges and acute at the tip, the depression back of the humeri sometimes with a small white spot, middle line carinated throughout. Wing-covers yellowish hyaline, the small coriaceous base very thick, black, coarsely punctate, veins pale brown from base outward, but dark brown toward the tip, areoles of the apical series growing narrower toward the postcostal border. Sides of pro and mesopleura with large white patches. Legs black, tibiae, apex of femora, and all but tip of tarsi yellowish, bristly. Veins of wing-covers punctate and set with bronze bristles.

Length to tip of thoracic process, 4-4½ mm.; to tip of wing-covers, 6 mm.

Type.—No. 3142, U.S.N.M.

Seven specimens of this interesting form are in the collection.

MACHÆROTYPUS SELLATUS, new species.

Dull brown, bronze pubescent, resembling *Campylocentrus curvidens*, Fairmaire, but with shorter and more auriculate, blunter, excavated humeral expansions. Head short, bluntly rounded, closely punctate, and densely covered with long pubescence. Pronotum a little compressed anteriorly, closely punctate and pubescent, with two small black callosities each side, a transverse raised belt just behind the

sulcus, indented on the middle and carinated on the outer margins, middle line carinated throughout to the very tip of the wedge-shaped process, which extends as far as the apical series of areoles of the wing-covers, is a little curved down and very acute at tip, the lateral margin deeply sinuated before the base of the humeral auricles, the auricles triangular above, the outer angles subtriangular. Wing-covers broad, triangular at tip, the coriaceous base very small, coarsely punctate, blackish. Legs pale brownish, the femora and tip of tarsi darker.

Length to tip of thoracic process, 4 mm.; to tip of wing-covers, 5-5½ mm.

Type.—No. 3141, U.S.N.M.

Seven specimens of almost uniform appearance are in the collection.

Family CERCOPIDÆ.

MONECPHORA ASSIMILIS, new species.

Body moderately narrow, dark brown or black when mature, the wing-covers carried steeper than usual. Head, as seen from above, shorter than wide, the vertex coarsely effaced-punctate, scabrous, greenish black, longitudinally impressed each side of middle, the intervening surface with large tumid elevations, and the apex recurved; face moderately prominent, a little rough, broadly grooved, with the carinate borders spreading apart below; rostrum yellowish, extending behind the middle coxæ. Pronotum transverse, convex, rugulose and coarsely, closely punctate behind the impressed anterior lobe. Wing-covers moderately narrow, densely punctate and scabrous, finely pubescent, obliquely rounded at tip. Metasternum, pleural pieces, and coxæ yellowish; legs black or piceous, the middle and posterior tibiæ sometimes pale.

Length to tip of wing-covers, 6½-8 mm.; width of pronotum, 2½ mm.

Type.—No. 3139, U.S.N.M.

Fourteen specimens of three degrees of maturity are in the collection. The females are usually larger than the males and less firm in texture of wing-covers.

Subfamily APHROPHORINA.

PHILÆNUS SPUMARIUS Linnæus.

Cereopsis spumaria, LINNÆUS, Syst. Nat., 12 ed., p. 708.

Twenty-nine specimens of two or three varieties of this species are present in the collection.

LEPYRONIA GROSSA, new species.

This is a larger, more robust, and inflated form than *L. coleoprata*, Linnæus. The pattern of marking of the female is much like that of the species cited, but it is nearly twice as large. Surface dull, grayish clay drab, black beneath and on the tergum. Vertex usually blackish

in the males, grayish drab in the females, wider than long, angularly curbed, with the tip callous and a little recurved, pale, followed behind by a broad impression, the surface generally uneven, closely covered with grayish pubescence; eyes oblique, continuing the curve of the lateral margin, brown; front tumidly convex, mostly black, coarsely ribbed, longer than wide, separated from the spindle-shaped clypeus by a constricted interval; rostrum black, pale in the middle, reaching to the middle coxæ. Pronotum uneven, wider than long, closely pubescent, triangularly emarginate posteriorly, callosities wide apart, transverse, suboval, indented in the middle, the surface unevenly granulated and with some obsolete punctures, lateral margins a little oblique, middle line sulcated. Scutellum faintly each side of the middle, minutely shagreened and punctate, with the sides feebly sinuated, the middle with a short prominent, thick ridge, tip acute and pale. Wing-covers much inflated, as usual longer than the body, the inner margin of apex oblique, the outer oblique and a little curved, the base uneven, with two or three impressed spaces on and interior to the costal area, one of these runs from costa diagonally inward, base with a large triangular black spot, which starts at the scutellum and runs back obliquely outward to behind the middle of the costa, from this a broad band runs obliquely inward behind the apex of the clavus; inner corner of corium with a black spot, which is sometimes forked; pale portion of disk dotted with black in the female; surface generally pubescent. Legs piceous or black, the posterior tibiæ bounded with pale. Mesosternum with a pale spot.

Length to apex of wing-covers, 7-9 mm.; width of pronotum, 3-3½ mm.

Type.—No. 3133, U.S.N.M.

Twenty-six specimens of this fine species are present in this collection. The black markings on the wing-covers of the male are more sharply defined and concentrated than in the female. The male is also relatively rounder and broader than the female.

PHILAGRA ALBINOTATA, new species.

Robust, subovate, obscure dark brown, marked with a costal longitudinal pale, angular spot, or with a rhomboidal spot near the costal apex and two or more pale spots on the disk of the wing-covers. Head produced, recurved toward the tip, forming a cylindrical tapering horn, with a polished callous tip, shagreened and somewhat punctate on the middle and basal part of vertex; face polished, having a broad yellow vittata which, originating near the tip, forks to follow the margin back to base and then continues upon the pleura to posterior coxæ; rostrum stout, piceous, reaching to middle coxæ. Pronotum a little wider than long, scabrous, a little coarsely punctate in front, pubescent, with a yellow spot each side next the callosities, posterior margin deeply, triangularly emarginated, with a slender carinate line on the middle which continues on the head; scutellum with an ivory-yellow spot at

tip. Wing-covers of moderate width, strongly arcuated on the costal border, nearly straight on the opposite margin to near the tip, the tip obliquely curved, the surface minutely scabrous, finely pubescent, with a series of about four, approximate, oblong, small pale spots on the disk, and a larger one near the apex of costa, the costal margin strongly reflexed. Sternum and venter banded with white. Legs pale chestnut brown, the middle and posterior coxæ and adjoining pleural pieces whitish yellow.

Length to end of wing-covers, $11\frac{1}{2}$ – $12\frac{1}{2}$ mm.; width of pronotum, $2\frac{3}{4}$ –3 mm.; length of horn of head, $2\frac{1}{2}$ mm.

Type.—No. 3138, U.S.N.M.

Eleven specimens of this singular insect are in the collection.

APHROPHORA MAJOR, new species.

Form similar to that of *A. alni*, Fallen: pale brownish testaceous, with a tinge of gray, minutely pubescent, densely and roughly punctate. Vertex about half as long as wide, lunately arcuated, and oblique at the very tip, middle line carinated on a longitudinal ridge, which is darker than the adjoining surface, apical margin callous and pale; front low, longer than wide, moderately convex, curving narrower inferiorly, crossed by sharp-cut, yellowish ribs, which are separated by black, punctate grooves, the middle line callous, and pale above, clypeus with a central dagger-shaped white callosity, which connects above with the callous, white transverse border of the apex of front; checks tawny, unevenly punctate; rostrum piceous toward the tip, reaching to the posterior coxæ. Pronotum very feebly convex, longer than wide, punctate with brown in uneven, transverse rough grooves, the lateral margins obliquely narrowing posteriorly, the middle of apical margin slightly acute, posterior margin triangularly emarginated, the middle line interruptedly carinated; scutellum abruptly tapering from middle to tip, punctate with brown at base, pale yellowish and smooth near the tip. Wing covers gradually tapering to an almost acute tip, closely and a little more coarsely punctate toward the base, the inner margin quite straight until next the slightly expanded tip, the costal margin gently curved, veins long, forming long narrow areoles, cells of the apex short and narrow, the discoidal middle vein marked on the center with a pale round spot. Margins of the meso and meta pleura and sternum whitish testaceous. Legs pale tawny, tinged with darker, the apex of all the tarsi piceous. Venter polished, pale tawny.

Length to end of abdomen, 7–11 mm.; to tip of wing-covers, 10– $13\frac{1}{2}$ mm.; width of pronotum, — mm.

Type.—No. 3134, U.S.N.M.

Twenty specimens of this variable species were placed in the collection. The range of variation in the size of the individuals is something most remarkable. In some specimens also the apex of the head is acute and almost triangular.

APHROPHORA OBLIQUA, new species.

Pale fulvo-testaceous, coated with grayish pubescence, form of *A. alai*, Fallen. Vertex short, lunate, with the apex a little triangular and recurved, the adjoining margin pale and smooth, a transverse groove crosses the line of the ocelli, and a depression exists behind the ocelli, surface uneven punctate, depressed area curving inward from the eye pale; front moderately convex, acute at the summit of the fusiform callous middle line, which is smooth and pale yellow, and with a black suture each side above, transverse ribs coarse, yellowish, with the intervening sutures blackish, punctate, and having the depression at the apex closely punctate with black; clypeus with a triangular callosity at base, which is followed below by a dagger-shaped, also pale, callosity, bounded each side by lines of punctures; cheeks uneven, punctate; rostrum yellowish, reaching behind the posterior coxæ, black at tip. Pronotum a little longer than wide, obscure orange anteriorly, dark brownish behind and on the scutellum, coarsely punctate in wavy lines posteriorly, less closely so anteriorly, middle line roughly carinated, posterior margin triangularly sinuated, the lateral margins oblique, anterior margin acute in the middle; scutellum acutely tapering to tip, with the lateral margins yellowish. Wing-covers pale grayish, the base fuscous, disk fuscous, mottled with pale testaceous, covered with fine pubescence, a broad, broken, pale diagonal band extends from the inner angle of the clavus to before the middle of the costa, inner end bending back upon the clavus, surface rough and punctate, the apical one-third pale, with a brown spot at tip. Legs testaceous, with the apex of tibiæ and bands on joints of tarsi brown. Abdominal segments bordered with whitish. Spots on sides of mesopleura and posterior part of metapleura whitish.

Length to tip of wing-covers, 8-8½ mm.; width of pronotum, 2¾ mm.

Type.—No. 3135, U.S.N.M.

Thirteen specimens are present in the collection.

APHROPHORA INTERMEDIA, new species.

Somewhat broader than the preceding species, but similarly marked and more than twice as large. Color pale brown, finely grayish pubescent, densely and rather finely punctate on the upper surface and wing-covers. Head dull tawny brown above, black beneath, the vertex short, uneven, anterior margin a little curved, almost triangular, with the reflexed margin callous and pale, middle depressed, unevenly, somewhat remotely, punctate, eyes dark brown, not prominent; front rather short, blunt subconical, convex, coarsely ribbed, the sutures coarsely punctate, above the base of clypeus callous, yellow; cheeks uneven, rough, punctate in places, hirsute, bordered with yellow; antennæ honey yellow; rostrum black at base and tip, yellow in the middle, reaching upon the posterior coxæ. Sternal and pleural

pieces bordered and marked with yellow. Coxæ piceous, the posterior pair and metasternum yellowish testaceous; anterior and middle femora testaceous, twice banded with black, the posterior femora piceous, with the tibiae piceous and banded with yellow, apex of tarsi piceous. Wing-covers with a fuscous cloud at base, omitting the clavus, on the middle a large subtriangular band, the two dark areas separated by an oblique, white band, apex almost hyaline, marked next the inner extremity by a long, dusky spot, the two extreme apical areoles much longer than the others, the series of small ones next beyond the costal area separated by oblique veins; wings dark brown. Abdomen dull black, the sutures very slenderly pale, and the connexivum bordered with pale yellow.

Length to tip of wing covers, 11-12 mm.; width of pronotum, $3\frac{1}{2}$ -4 mm.

Type.—No. 3136, U.S.N.M.

Ten specimens are in the collection. They vary somewhat in depth of color, but otherwise seem to be unusually uniform in appearance.

APHROPHORA FLAVIPES, new species.

Narrower than either of the foregoing species, pale fulvo-testaceous, roughly punctate on most of the upper surface. Vertex yellow, with a broad, brown stripe on the middle, longer than in either of the preceding species, the anterior margin acute, with the tip a little produced, roundedly triangular, slightly reflexed, obsolete carinated on the middle, the surface sunken at the position of the ocelli; eyes oblique, very moderately prominent; front much longer than wide, nearly ovate, high, very convex, middle callous line yellow, very slender, with the sutures each side closely punctate with brown, transverse ribs fine, tawny, with the sutures dark, slender, punctate; rostrum reaching behind the posterior coxæ, broadly piceous at tip. Pronotum longer than wide, latero-posterior margins obliquely narrowing posteriorly, sinuated at base to fit the wing-cover, a broad, black stripe on the middle anteriorly, covering the acuminate point of the margin, each side of this is orange-colored spot, posterior half of surface dusky, and thickly punctate, middle line interruptedly carinate, the posterior margin triangularly and deeply emarginate, the lateral margins broadly reflexed. Scutellum pale orange, finely punctate, fuscous on the middle, slenderly tapering behind the middle, making a narrow tip. Wing-covers pale brownish testaceous, with an irregular brown spot next costal margin crossing near the base, another, larger, across the disk, and a third, smaller one, next the middle of the anteapical series of areoles, a series of four or five diagonal cross-veins on the postcostal apex, one of the second series of brown spots is placed upon the middle of clavus. Breast and legs mostly yellow, apex of the tarsi piceous. Venter fulvous, tinged with yellow.

Length to end of wing-covers, 9-10½ mm.; width of pronotum, 2¾-3¼ mm.

Type.—No. 3137, U.S.N.M.

Twelve specimens of this species are in the collection.

APHROPHORA INDENTATA, new species.

Testaceous, with a pale grayish-brown tinge, polished, roughly, but closely and finely punctate, in form similar to *A. quadrinotata*, Say, but rather broader, and different in details. Vertex short, subtriangular, with the apex prominent, the margin raised, thick and callous, pale, middle carina very prominent, the surface each side of it much depressed, with dark patches in the hollows, and on two spots on the anterior margin, front very prominent, convex, but little longer than wide, with an ivory-white spot above, the middle line punctate with black each side, transverse sulci blackish, the upper ones more distinctly punctate, the apex and clypeus testaceous; rostrum soiled testaceous, reaching upon the posterior coxæ, piceous at tip. Pronotum scarcely longer than wide, very convex, carinated on the middle line, acute at forward end of the carina, latero-posterior margins oblique, the lateral margins short, nearly straight, feebly carinate; surface coarsely punctate, marked with irregular brown spots or clouds; scutellum pale, indented, brown, and punctate in the middle, slender, short, acute, and pale at tip. Wing-covers whitish-testaceous, tumidly inflated on the middle back of the costal area, unevenly marbled with brown, leaving interruptions on some of the veins, usually with a brown spot on the middle of the antepical series, a smaller one near the apex, costally, and three small streaks at the end of three apical, superior, veins, postcostal space marked with only one small areole. Legs soiled testaceous, the femora clouded with a brown spot, and two faint, dusky bands on the tibiæ, tarsal nails piceous. Sternum and pleura pale testaceous. Venter orange fulvous, smooth, sutures of the segments narrowly bordered with rufous.

Length to tip of hemelytra, 7-8 mm.; width of pronotum, 2½ mm.

Type.—No. 3132, U.S.N.M.

Eight specimens, all more or less different, are in the collection.

Family JASSIDÆ.

PETALOCEPHALA DISCOLOR, new species.

Long and narrow, rusty brown with a tinge of orange. Head a little longer than the prothorax, triangularly rounded at the apex, the extreme tip recurved; surface dull, densely, minutely scabrous, obsoletely pubescent, almost flat, the antero-lateral margin reflexed, the middle line bluntly elevated; eyes dark brown, but little raised above the margin; ocelli seated against a slight depression; face broadly scooped out, black, with a yellow fusiform stripe on the middle, clypeus and

rostrum yellow; antennæ yellow, the bristle brown, the basal three joints moniliform. Pronotum convex on the dorsal portion, unevenly rugulose and punctate, marbled or clouded with fuscous, depressed anteriorly to the level of the head, anterior margin pale, a little curved, shorter than the posterior one, the posterior margin broadly bilobate, the lobes separated by a deep and wide sinus, widely testaceous, the humeri bluntly triangular; mesonotum small, transverse, indented each side of base of scutellum and with three pale callosities at that point; scutellum very small, triangular, pointed with brown like the rest of the notum. Wing-covers almost parallel-sided, widening at the base of the membrane, and obliquely curving from thence to apex, color dull pale hyaline, streaked and bordered with brown areas, irregularly punctate and rugulose, the clavus opaque, thick, dark brown, the inner border interrupted with whitish, veins pale brown, partly interrupted with whitish, veins of the apical cells next the costal border short, broken, a little sinuous, dark brown. Legs pale dull brown, darker at the ends of the members and tips of tarsi. The under side black, and the segments all edged with whitish.

Length to end of abdomen, 7-9 mm.; to tip of wing-covers, $9\frac{1}{2}$ - $11\frac{1}{2}$ mm.; width of base of pronotum, $2\frac{1}{2}$ -3 mm.

Type.—No. 3143, U.S.N.M.

Four specimens, varying in colors and marking, are in the collection.

LEDRA AUDITURA, Walker.

Ledra auditura, WALKER, Brit. Mus. List, Supp., p. 249.

Nine specimens, some of which are very large females, are present in this collection. They vary considerably in colors and patterns of marking.

PENTHIMIA ATRA, Fabricius.

Penthimia atra, FABRICIUS, Ent. Syst., IV, p. 55, No. 36.

Four specimens of large size and black color are in this collection. One individual has a pale band across the pronotum.

PARABOLOCRATUS GUTTATUS, new species.

Elongated, bright pea green, polished. Head almost as long as wide, triangularly rounded in front, the subacute apex a little upturned, eyes brown, long, bluntly triangular on the inner side, the depressed middle crossed by two impressed lines, and a very slender impressed line on the middle; antennæ very long and slender, yellow from base to middle, brown from thence to tip. Pronotum short, sublunate, with the lateral ends diagonal and moderately rounded, the surface very finely wrinkled. Sternum and legs paler, the femora with some black specks, the tibiæ dotted with black, and with black spines. Wing-covers wedge-shaped when closed, a little tinged with yellow above, the margin of the clavus marked with two black, small spots,

one of which is on the apex, apical ends of membrane with two or three black traces, the surface highly polished.

Length to tip of wing-covers, 6-7 mm.; width of pronotum, 2 mm.

Type.—No. 3140, U.S.N.M.

Ten specimens are in the collection.

SELENOCEPHALUS VITTATIPES, new species.

Pale straw color; head broad, vertex sublunate, subtriangular and a little recurved at tip, the surface transversely depressed and slightly discolored; eyes large, ovate, brown; front broad and short, fuscous below, and crossed by close-set, fine brown lines. Pronotum broad, the transverse tabulate anterior lobe callous, the surface back of this crossed by fine, close wrinkles. Scutellum smooth, triangular, wider than long, acute at tip. Testaceo-hyaline, with yellowish veins. Legs dull straw yellow, with a black stripe on the posterior side of the femora and tibiae.

Length to tip of wing-covers, 7 mm.; width of pronotum, 2½ mm.

Type.—No. 3127, U.S.N.M.

Only one specimen, a female, is in the collection.

SELENOCEPHALUS CINCTICEPS, new species.

Pale green, slender, with a slight black band behind the tip of vertex. Head short, sublunate, scarcely wider than the pronotum, the vertex feebly angular on the pale, recurved tip, this part separated behind by a transverse, impressed line which is usually colored black, the middle line behind this very slender, black, front long, gradually curving narrower below, banded with slender black lines, clypeus, rostrum, and cheeks ivory yellow. Eyes brown. Pronotum short, green, with the front border and oblique sides yellowish, a little uneven and indented anteriorly, the posterior submargin including the sides linearly impressed and the edge reflexed; scutellum yellowish, triangular, depressed across the middle, acute at tip. Legs yellowish, with the spines and tips of tarsi brown. Under side ivory white. Wing-covers highly polished, long and narrow, yellow posteriorly and almost white along the costal border.

Length to tip of wing-covers, 5-6 mm.; width of pronotum, 1¼-1½ mm.

Type.—No. 3128, U.S.N.M.

Fifteen specimens, including two or three varieties, are in the collection. Some of the males have a wide black spot across the end of the wing-covers.

PACHYOPSIS MUNDUS, new species.

Pale greenish yellow, almost opaque, front and vertex almost coalescing, convex, the vertex short. Pronotum as wide as the head with the eyes, much wider than long, narrowly wrinkled, with the sides rounded, and the disk moderately convex, having an impressed, transverse,

curved line anteriorly. Scutellum with a roundish fossa each side of base. Wing-covers very coarsely and obsolete, remotely punctate. Legs pale yellowish.

Length to tip of wing-covers, 6 mm.; width of pronotum, 2 mm.

Type.—No. 3126, U.S.N.M.

Only two specimens are in the collection. Not so stout as *P. robustus*, Uhler.

EUACANTHUS INTERRUPTUS, Linnæus.

Euacanthus interruptus, LINNÆUS, Fauna Suec., p. 889

Six specimens of two varieties are present.

EUACANTHUS ANGUSTATUS, new species.

Much narrower and longer than the preceding species, and with fully developed wing-covers. The head is also less indented and slightly narrower. Color black; head with a large yellow, angular spot next the eye and extending behind connects with the same color on the cheeks, each side of middle behind is round fossa, followed exteriorly by a shallow groove; face yellow, with three black spots above, surmounted by a yellow dot in the black of the vertex, and on the middle a black dot. Pronotum sublunate, polished, partly bordered each side before by a yellow band. Scutellum with a yellow subtriangular spot at base, and the acute tip also yellow. Wing-covers long and narrow, black, polished, bordered with pale yellow. Middle of sternum with a black spot. Venter narrowly yellow on the sutures of the segments.

Length to tip of hemelytra, $6\frac{1}{2}$ –7 mm.; width of pronotum, $1\frac{1}{2}$ mm.

Type.—No. 3129, U.S.N.M.

Eight specimens are present. Possibly this is the macropterous form of the preceding, but it offers a few structural points of difference therefrom.

TETTIGONIA VIRIDIS, Linnæus.

Tettigonia viridis, LINNÆUS, Fauna Suec., p. 896.

Thirteen specimens of the common form are present in the collection, although some are of large size.

TETTIGONIA FERRUGINEA, Fabricius.

Tettigonia ferruginea, FABRICIUS, Entom. Syst., p. 32, No. 22.—SIGNORET, Ann. Soc. Ent. France, 1863, p. 676, pl. XXII, fig. 5.

Fifteen specimens, almost exactly alike, contribute a showy element to the collection. The name given to this species by Fabricius is unfortunate, since the insect, instead of being ferruginous, is usually of a bright orange yellow, with black markings.

TETTIGONIA GUTTIGERA, new species.

Form similar to *T. nigroguttata*, Signoret, but with a shorter head and wider pronotum. Color orange or pale yellow, with the surface polished. Vertex much wider than long, bluntly triangular and tumid on the apical division, and which is bounded behind by a wide transverse impression, before the middle three black dots, basal division incised on the middle, and with the posterior margin carinated; front nearly conical, convex, distinctly cross-ribbed, on the middle above is a black dot, the two lateral spots of the vertex sometimes overlapping on the front; clypeus prominently ridged; the rostrum very slender, reaching to the middle coxæ; superior cheeks with a wide, deep longitudinal groove. Pronotum transverse, wider than the head, anteriorly lower than the head, finely wrinkled, coarsely and obsoletely punctate, the sides curving down, and the posterior margin curving forward, middle of posterior margin triangularly emarginate; mesonotum triangular, depressed, obsoletely punctate, the scutellar portion elevated. Wing-covers translucent, thin, the veins and cells long and mostly parallel-sided, unevenly rugulose, broadly curved at tip. Legs and beneath pale yellow, the spines a little darker, and the tip of tarsi piceous.

Length to tip of wing-covers, 10 mm.; width of base of pronotum, $2\frac{1}{2}$ mm.

Type.—No. 3125, U.S.N.M.

Five specimens are in the collection, of which one is much paler than the others.

THAMNOTETTIX SELLATA, new species.

Broad spindle-shaped, testaceous with a faint bluish tinge, dotted and speckled with pale brown, and with a large, brownish spot on the middle of the wing-covers conjointly, the tip and two or three traces darker brown. Vertex ivory-yellowish, sublunate, slightly triangular, at tip, with a row of fine points near the anterior margin and more remote dots on the posterior margin; front conically narrowing below; eyes brown. Pronotum transverse, highly polished, crossed by a few fine, scratched lines, color ivory-yellow, lateral angles acutely narrowing, the postero-lateral margin oblique. Mesodorsum, including the scutellum, triangular and a little shorter than wide, with two small brown dots near base, separated by a slender line, and followed on the scutellum by a brown, transverse spot, scutellum bounded at base by a curved suture. Wing-covers curved, wedge-shaped by contact at the apical area, finely dotted, sprinkled and veined with brown, the ovate, central spot partly margined with darker brown, effaced on the sutural line, apex of membrane with a suffused brown spot which has a few pale dots inclosed in it, the superior apical angle rectangular, costal border curved, pale, the subcostal vein speckled with brown. Legs

spotted and dotted with brown, the tibiae with a brown dot at base of many of the spines, tarsal joints interrupted with brown.

Length to tip of wing-covers, $4\frac{1}{2}$ mm.; width of pronotum, $1\frac{1}{4}$ mm.

Type.—No. 3130, U.S.N.M.

Only two specimens of this modest little species are in the collection. It somewhat resembles *Jassus seminudus*, Say, in pattern of marking and colors, but it is a much wider insect, more wedge-shaped posteriorly, and with a more acute vertex.

LIMOTETTIX?, species.

Twelve specimens of a long and narrow species related to *Deltocephalus* are present in one of the boxes. This insect has so much resemblance to the European insects of this type that I hesitate to describe it, believing that it must have been published heretofore by some of the German or Scandinavian entomologists.

The Psyllidæ of the collection have been worked up by Mr. E. A. Schwarz, and his descriptions are herewith appended.

ANOMONEURA, Schwarz, new genus.

Head strongly inclined: plates of vertex anteriorly obliquely truncate and subtriangularly produced near the anterior ocellus; frontal processes cone-shaped, depressed below the level of the vertex; eyes large globular; anterior ocellus visible from above; antennæ long and slender: third joint much longer and thinner than the second. Pronotum strongly ascending posteriorly, lateral impressions distinct: dorsulum transverse, slightly ascending posteriorly. Fore wings elongate, membranous, of equal width from middle to apical fourth, apical edge rounded but not regularly so, the tip of the wing being much nearer to the anterior than to the posterior costa: petiolus cubiti about half the length of the discoidal part of subcosta: a long pterostigma: radius slightly curved and normal at its basal half, beyond the middle giving forth two (sometimes three, or even four) parallel cross veins which run obliquely through the radial cell to the outer costa: at apical fourth the radius bifurcates, thus forming a large marginal cell, which is crossed by the fourth fureal vein: stem of second fork greatly arched at basal half; discoidal cell closed, first marginal cell much smaller than the second: fourth fureal vein running in the tip of the wing: hind tibiae not toothed at base; genital plate and forceps of male without appendages.

Belongs to the tribe Psyllini and agrees with the genus *Psylla* (as defined by Fr. Læw) in shape of the body and in formation of cephalic parts, but differs in the form of the fore wings, and more especially in the venation. The latter is altogether most unusual, and would have been considered as an accidental abnormality if a single specimen only had been examined. The number of accessory veins connecting the

radius with the outer costa varies from two to four; if there are only two or three, one or the other of them occasionally bifurcates, the bifurcation beginning either near the base or in the middle of the vein.

ANOMONEURA MORI, Schwarz, new species.

Body rather stout, opaque, very finely aciculate, pale yellowish green, or greenish yellow, or pale ochereous, dorsulum and mesonotum with faint markings of a more decided yellow color. Posterior margin of head strongly emarginate, vertex nearly flat, along the median line slightly shorter than half its width at base, nearly parallel between the eyes, anteriorly obliquately truncate and slightly triangularly produced; discal impressions small but continued anteriorly in an oblique line; frontal processes hairy, as long as the vertex at middle, obtusely triangular, contiguous and broad at base, divergent apically. Antennae longer than head and thorax combined, filiform, pale yellow, joint 3 slightly longer than 4, joints 4 to 8 subequal in length, tipped with black, joints 9 and 10 entirely black.

Pronotum at middle slightly longer than at the sides, as long as the vertex, anterior edge strongly convex, posterior edge slightly concave; dorsulum at middle nearly twice shorter than its width and decidedly longer than the vertex, anteriorly much more arched than posteriorly.

Fore wings about two and one-half times longer than wide, widest part at apical third, slightly whitish but transparent, with a series of brownish spots on the costa from the outer corner of the clavus to the first branch of the radius; also with numerous small brown dots along the furcal veins and the branches of the radius. Veins moderately fine, pale ochereous, anterior costa nearly straight to within a short distance from the tip, posterior costa beginning to arch at apical fourth; the tip of the wing is therefore not in the middle of the apex, but much nearer the anterior costa than to the posterior costa; discoidal part of subcosta slightly shorter than the basal part, stigma tolerably long, but narrow and not closed; radius as described in the generic description; stem of first (inner) fork longer than the basal part of subcosta, first furcal vein very short, forming an obtuse angle with the stem; second furcal forming an obtuse angle with the stem, abruptly bent beyond its middle and terminating rectangularly on the costa; stem of second fork greatly arching at basal half, straight and parallel with the first stem at terminal half, third furcal vein forming the straight continuation of the stem, fourth furcal continued across the outermost branch of the radius, decidedly longer than the third furcal and terminating in the tip of the wing. Metacoxal processes rather blunt at tip; legs pale greenish or yellowish; tarsi darker.

Male.—Genital plate slightly longer than the genital segment, without lateral lobes, straight, rather broad, about four times higher than wide, hardly narrowing apically; forceps, when viewed from the side, slightly narrower and about one-fifth shorter than the plate, simple,

pointed at tip, front edge slightly convex, hind edge straight; when viewed from behind, the two lobes of the forceps are separated by a narrow slit, the sides of which are not arcuate, but converge gradually toward the tip.

Female.—Genital segment a little longer than the two preceding ventral segments combined; valves normal and gradually narrowing toward the tips, which are moderately acute; upper edge of upper valve (when viewed from the side) slightly concave, lower valve shorter than the upper, and with its lower edge convex.

Type.—No. 3410, U.S.N.M.

The collection contains three female specimens, No. 1154 marked 2367. I have also seen four other specimens (two males, two females) collected in Japan by Mr. Albert Koebele, who writes that this species is very injurious to mulberry and a serious drawback to sericulture.

PSYLLA PYRISUGA Færster.

The collection contains eight specimens, No. 1150, which in no way differ from European specimens. The synonymy of this species is given by Dr. Franz Löw.¹

¹Ver. K. K. Zool.-Bot. Ges. Wein, XXXII, p. 427 (1882).